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Zinc finger protein

Zinc finger proteins (abbr. Zfp, or zif) are members of a multigene family encoding zinc mediated nucleic acid binding proteins. zinc finger proteins are among the most abundant proteins in eukaryotic genomes and have been isolated from various organisms including yeast, Drosophila melanogaster, Xenopus laevis, mouse and humans. Some of its members have been highly conserved between species (see, for example: Egr-1).

A zinc finger is made up of a short stretch of 28-40 amino acids containing a characteristic C2H2 (Cys-Cys-His-His) motif. Individual Zinc finger structures are as diverse as their functions. Proteins containing zinc fingers participate in DNA recognition, RNA packaging, transcriptional activation, regulation of cell death by apoptosis, protein folding and assembly, and lipid binding (Laity et al, 2001). Quite a few zinc finger proteins have been linked to human development and disease (Ladomery and Dellaire, 2002).

Designer zinc finger proteins are beginning to find clinical applications (Papworth et al, 2006; Klug, 2005).

REFERENCES: Klug A Towards therapeutic applications of engineered zinc finger proteins. FEBS Letters 579(4): 892-894 (2005); Ladomery M and Dellaire G Multifunctional zinc finger proteins in development and disease. Annals of Human Genetics 66(Pt 5-6): 331-342 (2002); Laity JH et al Zinc finger proteins: new insights into structural and functional diversity. Current Opinion in Structural Biology 11(1): 39-46 (2001); Papworth M et al Designer zinc-finger proteins and their applications. Gene 366: 27-38 (2006)

Zinc finger protein

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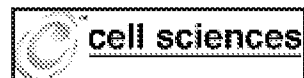
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